

# **Teton County, Wyoming**

## **Community Wildfire Protection Plan**



Teton  
Conservation  
District  
Est. 1946



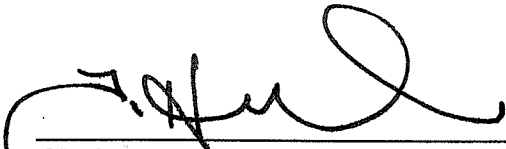
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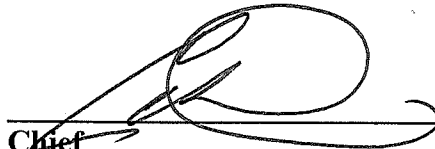
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**Teton County  
Community Wildfire Protection Plan**

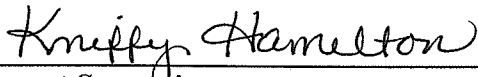
**SIGNATURE AUTHORIZATION:** My signature below verifies that I have reviewed and approved the Teton County Community Wildfire Protection Plan.



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## **Teton County Community Wildfire Protection Plan**

### **EXECUTIVE SUMMARY**

This document illustrates the Teton County community's commitment to mitigating the effects of uncontrolled wildfire on its properties and citizens. This document exemplifies the on-going collaborative effort of many jurisdictions. It is the intent of this plan to provide guidance to citizens and agencies concerning wildfire issues.

### **BACKGROUND AND SIGNIFICANCE**

Teton County experienced significant wildfire years in 1988, 1996, 2001. Following the fires of 1988, local, state and federal jurisdictions began planning for a cooperative effort to fight wildfires occurring within the county. Furthermore, this group began the process of assessing subdivisions at risk within the community and implementing fuels management projects in various locations on public lands.

The 1996 and 2001 fire years proved the value of the interagency efforts. The significance to the community is that such cooperation brings together multiple disciplines, technical experts and specialties, political subdivisions and tactical resources which creates a holistic approach to wildfire issues. In addition, such an approach maximizes resources regionally and makes each agency stronger.

### **THE TETON COUNTY COMMUNITY**

Teton County is the northwestern most county in Wyoming and sits just south of Yellowstone National Park.

Demographics – Population 18,625 permanent residents, 2.5 – 3 million visitors annually.

Area size – 4008 square miles

Private to Federal ratio – 3% private, 97% government

Within the borders of Teton County, the approximate number of acres for each jurisdiction is:

- Bridger-Teton National Forest = 400,157 acres
- Caribou-Targhee National Forest = 268,686 acres
- Grand Teton National Park = 309,221 acres
- Yellowstone National Park = 880,448 acres
- Bureau of Land Management = 2,758 acres
- US Fish & Wildlife = 24,700 acres
- Bureau of Reclamation = 25,600 acres
- State of Wyoming = 6,069 acres
- Private = 78,528 acres

Population locations – Approximately 20 % of Teton County citizens live within a Wildland-Urban Interface.

## **COLLABORATION**

Teton County has a long history of collaboration with regional partners. Following the wildland fires in the Yellowstone Ecosystem of 1988, federal, state and local agencies began development of projects and programs that attempted to meet the needs of each agency and the public at large.

Current government partners include Teton County, Town of Jackson, Jackson Hole Fire/EMS, Bridger-Teton National Forest, Grand Teton National Park, Caribou-Targhee National Forest, Bureau of Land Management, Wyoming State Forestry, Teton Conservation District, Wyoming Game & Fish, U.S. Fish & Wildlife, and Bureau of Reclamation.

In the summer of 2004, the Teton Area Wildfire Protection Coalition was formed. This organization furthers collaborative efforts by bringing the citizen voice to the discussion. In addition to government partners' participation, individual citizens, local contractors and representatives from the Jackson Hole Alliance and the Jackson Hole Land Trust also join the coalition work. This plan is the direct result of the cooperative efforts of the Teton Area Wildfire Protection Coalition.

## **WILDLAND-URBAN INTERFACE AREAS - PRIORITY RANKING**

This section identifies those areas of top priority to the community as a whole. It should be noted that all cooperators have prioritized WUI areas completely within their jurisdiction for wildland projects, and as a result this section is not inclusive of all Teton County wildland urban interface areas within public and private lands. It is the intent of the community to continue to work in all WUI areas to mitigate the effects of uncontrolled wildfire upon the lives of citizens and their property. The ranking process is dynamic and WUI areas will be reviewed and ranked on a yearly basis to ensure the top communities are listed and considered when approving projects and requesting funding. Appendix A gives further definition to all areas and the communities with the identified polygons.

Additionally there is a need to realize that although some communities are not listed or for that matter prioritized there has been fuel management work completed in many or often projects will be funded due to other priorities, funding availability, property owner involvement or issues. The Teton Area Wildfire Protection Coalition often assists in setting those priorities or reviewing projects outside of the following six areas. The Teton Area Wildfire Protection Coalition and interagency representatives support funding and work within all communities listed in appendix A.

### **1. INTERFACE AREA F**

#### **Description**

Interface Area F consists of the Crescent H Ranch, Aspen Cove, Indian Paintbrush, McNeely Mountain, Wooded Hills and Deep Powder Subdivisions. Also included are US Forest Service lands, and State of Wyoming School sections adjacent to these subdivisions, denoted as Indian Paintbrush. This is a relatively small geographical area with high-density development within the interface. The following properties will be at risk in the event that fire approaches these areas.



### **Hazard Level**

The hazard level for this area is determined through assessment using the *International Urban-Wildland Interface Code*, as adopted by Teton County and the Town of Jackson.

Interface Area F Hazard Level: **High to Extreme**

### **Predominant Hazard Fuel**

The predominate hazardous wildland fuels are mixed lodgepole pine and sub-alpine fir.

### **Infrastructure**

Single access points. Steep roads, narrow in spots. Fire hydrant system with low capacity flows.

### **Evacuation**

This plan will include both notification and evacuation order phases. Both phases will be activated by the following trigger points.

- |                              |   |
|------------------------------|---|
| <b>Notification Trigger:</b> | 1. A fire escapes initial attack or spots within 1.5 miles of Area F. |
| <b>Evacuation Trigger:</b>   | 2. A fire escapes initial attack or spots within 1 mile of Area F.    |

**NOTE:** any fire which burns in the area which exhibits extreme fire behavior, is tactically unsafe to fight or poses an immediate threat to the area may trigger immediate evacuation.

**Map: See Map**

## **2. INTERFACE AREA G**

### **Description**

Area G consists of the Seeley Property, Heck of a Hill, Cameron Road, Elliot Cemetery, Trail Creek Ranch, Pass Ranch, Blue Mountain Bench and South Fish Creek areas. Also included are US Forest Service lands, and State of Wyoming School sections adjacent to these subdivisions, denoted as Heck-of-a-Hill. The following properties will be at risk in the event that fire approaches these areas.

### **Hazard Level**

The hazard level for this area is determined through assessment using the *International Urban-Wildland Interface Code*, as adopted by Teton County and the Town of Jackson.

Interface Area G Hazard Level: **High to Extreme**

### **Predominant Hazard Fuel**

The predominate hazardous wildland fuels are mixed lodgepole pine and sub-alpine fir. Limited portions of the area have a sage interface.

### **Infrastructure**

Single access points. Most roads are narrow without adequate turn-outs. Some roads are steep. Water supplies for fire fighting do not exist.

### **Evacuation**

This plan will include both notification and evacuation order phases. Both phases will be activated by the following trigger points.

**Notification Trigger:** 1. A fire escapes initial attack or spots within 1.5 miles of Area G.

**Evacuation Trigger:** 2. A fire escapes initial attack or spots within 1 mile of Area G.

**NOTE:** any fire which burns in the area which exhibits extreme fire behavior, is tactically unsafe to fight or poses an immediate threat to the area may trigger immediate evacuation.

**Map: See Map**

### **3. INTERFACE AREA O**

#### **Description**

Area O consists of the Buffalo Valley, Moran and Pacific Creek areas. Also included is Grand Teton National Park interface area denoted as Pacific Creek/Moran and Bridger-Teton area denoted as Pacific Creek/Buffer Valley. This area is narrow north/south and long east/west. Area O consists of five distinct geographic areas, the east consisting of Pacific Creek, Moran, Turpin Meadows, center consisting of Mountain View Ranch area, and the west consisting of Buffalo Valley Estates / Teton Wilderness Ranch area. While fires may affect only a portion of the Buffalo Valley, limited access will affect the entire region.

#### **Hazard Level**

The hazard level for this area is determined through assessment using the *International Urban-Wildland Interface Code*, as adopted by Teton County and the Town of Jackson.

Interface Area O Hazard Level: **Moderate to High, High to Extreme**

#### **Predominant Hazard Fuel**

The predominate hazardous wildland fuels are mixed lodgepole pine and sub-alpine fir. Limited portions of the area have a sage interface.

#### **Infrastructure**

Buffalo Valley is serviced with a long road which intersects Highway 26 near Moran and near Togwotee Pass. The road is narrow in spots with winding curves. Limited water systems for fire fighting exist. Some hydrants with pumps and dry hydrants are in place within subdivisions.

### **Evacuation**

This plan will include both notification and evacuation order phases. Both phases will be activated by the following trigger points.

**Notification Trigger:** 1. A fire escapes initial attack or spots within 1.5 miles of Area O.

**Evacuation Trigger:** 2. A fire escapes initial attack or spots within 1 mile of Area O.

**NOTE:** any fire which burns in the area which exhibits extreme fire behavior, is tactically unsafe to fight or poses an immediate threat to the area may trigger immediate evacuation.

**Map: See Map**

#### **4. INTERFACE AREA E**

##### **Area Description**

Area E consists of the Taylor Creek, Singing Trees, River Meadows, Cottonwood Canyon, S & S and Eagle Southfork Subdivisions. Also included is Bridger-Teton Forest area denoted as Cottonwood Canyon. This is a relatively small geographical area with 6 subdivisions. The following properties will be at risk in the event that fire approaches these areas.

##### **Hazard Level**

The hazard level for this area is determined through assessment using the *International Urban-Wildland Interface Code*, as adopted by Teton County and the Town of Jackson.

Interface Area E Hazard Level: **Moderate to High**

##### **Predominant Hazard Fuel**

The predominate hazardous wildland fuels are mixed lodgepole pine and sub-alpine fir.

##### **Infrastructure**

Single access points. Most roads are narrow, some have adequate turn-outs. Some roads are steep. Water supplies for fire fighting do not exist.

##### **Evacuation**

This plan will include both notification and evacuation order phases. Both phases will be activated by the following trigger points.

**Notification Trigger:** 1. A fire escapes initial attack or spots within 1.5 miles of Area E.

**Evacuation Trigger:** 2. A fire escapes initial attack or spots within 1 mile of Area E.

**NOTE:** any fire which burns in the area which exhibits extreme fire behavior, is tactically unsafe to fight or poses an immediate threat to the area may trigger immediate evacuation.

**Map: See Map**

## **5. INTERFACE AREA D**

### **Description**

Area D consists of the Fall Creek Ranch/Trails End Ranch/Red Top Meadows/Highland Park Estates/Hidden Hills Ranch areas. Also included is the Bridger-Teton Forest area denoted as Red Top Meadows and a State of Wyoming School section. This is a large geographical area with 4 subdivisions. The complexity of fire(s) in the area may necessitate evacuation of some portions of or all of the area. The following properties will be at risk in the event that fire approaches these areas.

### **Hazard Level**

The hazard level for this area is determined through assessment using the *International Urban-Wildland Interface Code*, as adopted by Teton County and the Town of Jackson.

Interface Area D Hazard Level: **Moderate to High**

### **Predominant Hazard Fuel**

The predominate hazardous wildland fuels are mixed lodgepole pine and sub-alpine fir. Limited portions of the area have a sage interface.

### **Infrastructure**

Single access points. Most roads are narrow without adequate turn-outs. Some roads are steep. Water supplies for fire fighting do not exist.

### **Evacuation**

This plan will include both notification and evacuation order phases. Both phases will be activated by the following trigger points.

**Notification Trigger:** 1. A fire escapes initial attack or spots within 1.5 miles of Area D.

**Evacuation Trigger:** 2. A fire escapes initial attack or spots within 1 mile of Area D.

**NOTE:** any fire which burns in the area which exhibits extreme fire behavior, is tactically unsafe to fight or poses an immediate threat to the area may trigger immediate evacuation.

**Map: See Map**

## **CODES AND REGULATIONS**

Teton County has adopted a number of strategies to protect life and property from the effects of uncontrolled wildland fire. The promulgation, adoption and enforcement of codes and regulations is one such strategy. Jackson Hole Fire/EMS enforces the International Fire Code, the International Urban-Wildland Interface Code and the Teton County Fire Protection Resolution for New Subdivisions. Each code is intended to mitigate the risk of fire to property in slightly different ways.

These regulations influence the design of infrastructure and structures within interface areas. Codes address both the fire resistance of structures in the interface, as well as the ignitibility of the structures. Those structures built or intended to be built within an extreme hazard area must rise to the highest level of interior and exterior protection. Furthermore, these codes allow the County to require that vegetation be managed in proximity to structures as well as across each subdivision.

The purpose of the Teton County Fire Protection Resolution for New Subdivisions is to ensure adequate emergency access/egress and a stable and adequate fire fighting water supply.

The purpose of the International Fire Code is to establish the minimum requirements necessary to provide a reasonable level of life safety and property protection from the hazards of fire, explosion and dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and other emergency responders during emergency operations.

The purpose of the International Urban-Wildland Interface Code is to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures and to mitigate structure fires from spreading to wildland fuels.

Amendments to these codes further allows the County to enhance protection of properties. One such amendment requires all structures 5000 square feet or larger be protected by automatic fire sprinklers within. Subdivision roads with sustained grades in excess of 8% may also trigger fire sprinkler requirements.

## **RESOURCES**

### **Preventative Forces**

Teton County collaborates with Grand Teton National Park, Bridger-Teton National Forest, Caribou-Targhee National Forest, Wyoming State Forestry and Teton Conservation District for pre-fire planning, fuel reduction projects, training and public education within the community. This team conducts numerous events throughout the year to speak to the effects of wildfire and provide resources to citizens to mitigate those effects.

Jackson Hole Fire/EMS reviews plans for all new or altered subdivisions, all new structures to be built within the interface and alterations to existing structures within the interface areas. The department enforces the codes and conducts inspections on properties within the interface areas.

Prevention goals include:

- Increase public awareness of the effects of uncontrolled wildland fire in interface areas.
- Increase public awareness of the positive effects of wildland fire use.
- Increase public awareness of the importance of forest health and stewardship.
- Conduct fuel reduction and vegetation management projects within interface areas.
- Ensure that codes are enforced.

## **Reactive Forces**

Jackson Hole Fire/EMS, Grand Teton National Park, and Bridger-Teton National Forest each operate fire fighting programs. These agencies collaborate to staff two initial attack wildland engines with one crew from each agency assigned to the engines. Cumulatively, resources include wildland fire resources, structural fire resources, aviation resources and support/logistical resources. These agencies operate through individual agreements and through a multi-agency Wildland Fire Management Annual Operating Plan.

Reaction force goals include:

- Ensure an adequately trained, equipped and response ready force.
- Continue collaborative training programs.
- Increase cross-agency familiarity of operations.
- Ensure team cohesion and integrity at the agency wide level.

## **PLAN REVIEW AND APPROVAL**

In order to be effective, this plan must be a dynamic document that addresses the changing wildland and the interface with it. The plan review, amendment and approval process will be as follows:

1. It will be the responsibility of the Teton Area Wildfire Protection Coalition (TAWPC) to review this plan and recommend changes to decision makers. All meetings are open to the public.
2. The plan will be reviewed on an annual basis, beginning at the February TAWPC meeting.
3. The amended plan will be approved at the May TAWPC meeting. A 2/3 or greater will be required for amendment to the plan. Public input is encouraged year round, but will be considered for amendment at the May meeting.
4. The approved plan will be forwarded to the appropriate bodies for signature. The head of each agency or a designated Deputy will be authorized to sign the plan. All signatures remain valid until the plan is amended and approved.
5. Once the plan is approved by signature, it will be published.

# APPENDICES

- A. Communities at Risk
- B. Fire Hazard Severity Form
- C. Private Wildland Stewardship Program
- D. Fire Resistant Vegetation
- E. Treatment Prescriptions
- F. Links

# APPENDIX A

## TETON COUNTY COMMUNITIES AT RISK

Teton County Communities at Risk (Federal Register)	Priority Ranking	Teton County Polygon	NPS Polygon Name (Associated Communities, Areas, & Developments)	BTNF Polygon Name (Associated Communities, Areas, & Developments)	General Legal Description by Township and Range
Alta		P (Alta)			T44N, R118W
Backcountry			Backcountry (Cascade Canyon, Death Canyon, Granite Canyon, Leigh Lake, Lower Berry, Moose Basin, Upper Berry Cabins)		T46N, R117W
Beaver Creek			Beaver Creek (Beaver Creek, Moose, Bar-B-C Ranch, 4 Lazy F Ranch, Climbers Ranch, Fabian Ranch, Highlands, Jenny Lake VC/CG, Jenny Lake Lodge/String Lake, Lupin Meadows, Murie Center, RKO)		T43N, R117W
Bryan Flats	9	A (McCoy Road, Bryan Flats Road/Spoiled Horse Road, Lone Eagle/Broken Arrow, Camp Creek Inn/Spotted Horse Ranch, Hoback River Subdivision)		Bryan Flats	T38N, R116W
Buffalo Valley	6	O (Teton Wilderness Ranches, Evergreen/Bufalo Valley Estates/Heart 6 Ranch area, Mountain View Ranch/Carson/May Subdivisions, Turpin Meadow Summer Homes, Turpin Meadow Ranch)	Buffalo Valley (Heart Six, Pinto Ranch, Wilderness, Buffalo Run)	Buffalo Valley	T45N, R114W
Colter Bay			Colter Bay (AMK, Colter Bay, Leek's Marina)		T46N, R116W
Cottonwood Canyon	4	E (Cottonwood Canyon, Taylor Creek, Singing Trees, River Meadows, S&S Subdivision, Eagle South Fork)		Cottonwood Canyon	T40N, R118W
E. Gros Ventre Butte		I (Lucas Riva Ridge, Warm Springs Ranch)	E. Gros Ventre Butte (Warm Springs)		T41N, R117W
Fish Creek	11	K (North Fish Creek)		Fish Creek	T42N, R118W
Flagg Ranch	12		Flagg Ranch (Flagg Ranch, Lizard Ck. CG)		T48N, R116W
Granite Creek	7			Granite Creek	T39N, R114W
Heck-of-a-Hill	2	G (Heck-of-a-Hill, Seeley Hill, Cameron Road/Elliott Cemetery Road, Trail Creek Ranch, Pass Ranch, R&G Subdivision, Blue Mountain Bench, South Fish Creek)		Heck-of-a-Hill	T41N, R118W
Hoback	8	B (Snake River Canyon Ranch, Deer Creek/Palmer Creek, Double R Ranch Subdivision, Jay King Subdivision, Hoback Junction South, Hoback Junction)		Hoback	T38N, R117W



Hog Island	17	C (Hog Island North, Hog Island South, Hog Island West, Horse Creek, Riverfront, Porcupine Creek, Game Creek/Squaw Creek)		Hog Island	T39N, R117W
Indian Paintbrush	1	F (Indian Paintbrush/McNeely Mountain, Aspen Cove, Crescent H Ranch, Wooded Hills, Deep Powder, Fall Creek Roa)		Indian Paintbrush	T41N, R118W
Jackson		J (Pine Drive, Snow King Drive, Upper Cache Creek Drive)		Jackson	T41N, R117W
Jackson Lake Lodge			Jackson Lake Lodge (Jackson Lake Lodge, Jackson Lake RS)		T45N, R116W
JY Ranch		M (JY Ranch, Solitude, Owl Creek)	JY Ranch (JY Ranch, Halpin Ranch, Lake Creek, R Lazy S, Whitegrass Ranch, Death Canyon RS)		T43N, R117W
North Blacktail			North Blacktail (Craighead hill, Domans, Mormon Row, Barker-Ewing, private properties to north)		T43N, R116W
Pacific Creek	3	O (Pacific Creek, Moran, Buffalo Valley)	Pacific Creek (Pacific Creek, Moran)	Pacific Creek	T45N, R115W
Red Top Meadows	5	D (Red Top Meadows, Fall Creek Ranch, Trails End Ranch, Highland Park Estates/Hidden Hills)		Red Top Meadows	T39N, R118W
Resorts		L (Ellen Creek, Teton Village, Granite Ridge, Poker Flats)		Resorts	T42N, R118W
Shadow Mountain	13		Shadow Mountain (Hunter Ranch, Lost Creek Ranch, McCollister, Teton Science School, Private residences)	Shadow Mountain	T43N, R116W
Signal Mountain			Signal Mountain (Brinkerhoff, Jackson Lake Dam Development, Signal Mountain Lodge, Signal Mountain Repeater site)		T45N, R116W
Snake	15		Snake (Cunningham Cabin, Moosehead Ranch, Triangle X)	Snake	T44N, R115W
Solitude	10	M (Solitude, JY Ranch, Owl Creek)	Solitude (Circle EW, Jackson Airport, Meadows, Solitude)		T42N, R117W
Spring Creek	16	I (Spring Creek Ranch, Saddle Butte, Stone Crop Ranch)		Spring Creek	T41N, R117W
Teton Valley Ranch			Teton Valley Ranch (Gros Ventre CG, Kelly, Teton Valley Ranch, TV Highlands)	Teton Valley Ranch	T42N, R115W
Teton Village	14	L (Ellen Creek, Teton Village, Granite Ridge, Poker Flats)	Teton Village (JH Resort Area, SW Entrance Station, Poker Flats)	Teton Village	T42N, R118W
W. Gros Ventre Butte	18	H (Gros Ventre West/Bar Y Estates, Indian Springs, Gros Ventre North)			T41N, R117W
Upper Gros Ventre River		N (Gros Ventre River Ranch, Taylor Ranch, Slide Lake, Bar Double R, Red Rock Ranch, Elk Track Ranch, Goosewing Ranch)			T N, R W

## APPENDIX B

## FIRE HAZARD SEVERITY FORM

<b>A. Subdivision Design</b>	<b>Points</b>	<b>D. Roofing Material</b>	<b>Points</b>
<b>1. Ingress/Egress</b>		Class A Fire Rated	1 _____
Two or more primary roads	1 _____	Class B Fire Rated	5 _____
One road	2 _____	Class C Fire Rated	10 _____
One-way road in, one-way road out	5 _____	Non-rated	20 _____
<b>2. Width of Primary Road</b>		<b>E. Fire Protection Water Source</b>	
20 feet or more	1 _____	500 GPM hydrant within 1000 feet	1 _____
Less than 20 feet	3 _____	Hydrant farther than 1000 feet or draft site	2 _____
<b>3. Accessibility</b>		Water source 20 min. or less, round trip	5 _____
Road grade 5% or less	1 _____	Water source farther than 20 min., and 45 min. or less, round trip	7 _____
Road grade more than 5%	3 _____	Water source farther than 45 min, round trip	10 _____
<b>4. Secondary Road Terminus</b>		<b>F. Existing Building Construction</b>	
Loop roads, cul-de-sacs with an outside turning radius of 45 feet or greater	1 _____	Non-combustible siding/deck	1 _____
Cul-de-sac turnaround, Dead-end roads 200 feet or less in length	3 _____	Non-combustible siding, combustible deck	5 _____
Dead-end roads greater than 200 feet in length	5 _____	Combustible siding and deck	10 _____
<b>5. Street Signs</b>		<b>G. Utilities (gas and/or electric)</b>	
Present	1 _____	All underground utilities	1 _____
Not present	3 _____	One underground, one aboveground	3 _____
<b>B. Vegetation (IUWIC Definition)</b>		All above ground	5 _____
<b>1. Fuel Types</b>		<b>Total for Subdivision</b>	
Light	1 _____	Moderate Hazard	40-59
Medium	5 _____	High Hazard	60-74
Heavy	10 _____	Extreme Hazard	75+
<b>2. Defensible Space</b>			
70% or more of site	1 _____		
30% or more, but less than 70% of site	10 _____		
Less than 30% of site	20 _____		
<b>C. Topography</b>			
8% or less	1 _____		
More than 8%, but less than 20%	4 _____		
20% or more, but less than 30%	7 _____		
30% or more	10 _____		

## APPENDIX C

### PRIVATE WILDLAND STEWARDSHIP PROGRAM

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# Private Wildland Stewardship and Wildfire Mitigation Program

Jackson Hole Fire/EMS has assessed those areas determined to be within the wildland/urban interface within private ownership in Teton County. Approximately 20% of Teton County's population lives within the interface. Most properties of larger size or acreage within the county consist of forested or brush covered lands.

The purpose of this document is to be used as a format for developing a wildland stewardship program for private properties in order to reduce the on-going risk of wildfire. The goal of this program is to assist property owners in developing long range wildfire protection for their property.

## **I. Definitions**

**Chipping:** A method of grinding or chipping branches or brush into small chips.

**Defensible Space:** An area surrounding structures which consists of green space, limited fuels or fire resistive fuels. This space slows advance of the fire and allows for fire fighting operations.

**Fuel:** Any type of vegetation available to burn during a wildland fire.

**Fuel Modification:** A method of changing fuel types, species or arrangement of fuels in order to reduce the wildfire risk.

**Fuel Reduction:** A method of removal of hazardous fuels, including over-growth, downed dead or standing dead vegetation.

**Ladder Fuels:** Ground fuels of sufficient height to come in contact with lower hanging branches of trees.

**Limbing:** Cutting lower branches of a tree in order to increase the space between ground fuels and limbs.

**Prescriptive Treatment:** Prescriptive treatment is a process by which vegetation is identified for removal. Vegetation to be removed should meet one or more of the following criteria:

1. Entirely or substantially within the drip line of another tree.
2. Diseased or insect infested.
3. Providing a significant ladder fuel effect.
4. Dead, dying or damaged by wind or mechanical means.
5. Hazardous to life, improvements, or property.

**Professional Forester:** A graduate of an accredited institution of higher education with a degree in Forest Management or related field, or equivalent training, education and job experience who is actively working in the field.

**Slash:** Waste vegetation remaining following cutting operations.

**Thinning:** Removal of vegetation in order to reduce the density of growth on a particular parcel of property.

**Vegetation Management Plan:** A plan for managing growth of vegetation after prescriptive treatment has been accomplished.

**Wildland/Urban Interface:** A mix of developed and un-developed properties where development poses a fire risk to un-developed resources, and the risk of wildfire poses a risk to developed properties.

**Wildland Stewardship Plan:** A plan for managing the overall health and wildfire resistance of forested, un-developed property or wildland/urban interface property.

**Zone:** A Zone is an area which surrounds your house. Zone 1 is a measurement of 0'-30'. Zone 2 is 30'-60'. And Zone 3 is 60'-100'.

## **II. Property Assessment**

The Wildland Stewardship Plan should be developed by a Professional Forester with adequate knowledge of the property in question. All Wildland Stewardship Plans should be submitted to the Fire Department for approval. All Wildland Stewardship Plans must include the following information:

### **Wildland Stewardship Plan**

#### **Objectives:**

1. A statement outlining the property owner's overall goals and objectives for the plan.

#### **Ownership Information:**

1. Name, address and phone number of the property owner.
2. Name, address and phone number of the person or Professional Forester preparing the plan.
3. Legal description and physical address of the property.

#### **Property Description:**

1. Acreage.
2. Elevation.
3. Aspect.
4. Vegetation types.
5. Soil types.

6. Existing improvements and property activities.
7. Cultural features on-site.
8. Hazards to the property.
9. Property Access.
10. Visual assessment.
11. Site map.

**Property Management:**

1. Current Conditions:
  - a. Vegetation data (timber, brush, grasses, age, density, etc.).
  - b. Disease / insect impacts.
  - c. Wildfire hazards.
  - d. Erosion issues.
  - e. Flora / fauna issues (wildlife assessment, Endangered Species Act issues, etc.).
  - f. Previous mitigation activities.
2. Proposed activities:
  - a. Fuel Reduction
    1. Thinning (fuel types, volume, size, methodology, etc.).
    2. Limbing.
    3. Ladder fuel reduction.
  - b. Fuel modification
    1. Plant type conversion.
    2. Thinning / arrangement.
  - c. Defensible space:
    1. Zone 1 plan.
    2. Zone 2 plan.
    3. Zone 3 plan.
  - d. Waste management:
    1. Hauling.
    2. Chipping.
    3. Recycling (firewood, product sales).
    4. Slash burning.
  - e. Proposed schedule.

**Vegetation Management:**

1. Short term objectives and activities.
2. Long term objectives and activities.

### **III. Mitigation Strategies**

Wildland/Urban Interface fires have destroyed thousands of homes in the last decade. While building your home in the trees not only enhances its appearance and value and can also increase its warm, friendly feeling, one must understand, however, that a "home in the woods" is not without risk. These risks can be reduced if you plan ahead and are aware of your surroundings.

This program is designed to give you information to use to develop a plan to build and maintain your home in a way that reduces the potential for tragedy. This program is meant to enhance your knowledge and allow you to make fire safe decisions. Those whose homes have survived wildfire have put to use information like this to protect themselves.

#### **BUILDING YOUR HOME IN THE WOODS**

##### **1. Choosing Your Building Site:**

One of the more important things you can plan is where to build. From a fire response point of view, seclusion can work against you. It helps to understand a little about fire behavior when choosing your site.

Avoid building in a natural draw or swale. Homes located in natural chimneys, such as narrow canyons and saddles, are especially fire-prone because wind is funneled into them. This accelerates fire's rate of spread by forming an uphill draft.

Locate your home on the most level portion of the site. Fire spreads at a remarkably faster rate as slope increases. Even minor grades, like ten percent, can accelerate the spread of wildfire. Homes on narrow ridges without adequate setback are often lost because flames and convection heat hit the home directly. Homes located on the slope, especially stilt and cantilevered homes, are particularly vulnerable.

Avoid dense stands of timber, especially if that timber is aged or over-mature. Choose property and a building site which is accessible or can be made accessible.

#### **Building Site Checklist**

##### **Site:**

- ☐ Building site is not in a draw or canyon.
- ☐ Building site does not overhang slope.
- ☐ Building site does not utilize steep slope.
- ☐ Building site is not in heavily timbered area.
- ☐ Building site has acceptable access.

## **2. Access:**

Access to your home is crucial. There is a difference between access and good access. Good access provides the fire department the ability to reach your home to protect it.

Good access consists of a roadway which is 20 feet wide that is capable of supporting the weight of fire trucks. The grade of the road should not exceed 8%. The side slope of the road should not exceed 2%. Branches and overhangs should be trimmed overhead to a height of 13'6". Good access has more than one way in and out.

If your access design uses a cul-de-sac you should access it with a 20' wide road. The minimum radius of the cul-de-sac should be 45' and its length less than 800'.

Curves should be maintained with radius of not less than 50' for all access roads.

Clearly mark your roadway. Road names and/or numbers are important. If your home is visible from the road be sure to put your house numbers where they can be seen.

Bridges can be a serious problem for fire apparatus. Ensure that the load limit is capable of supporting the loads of fire apparatus. Make sure the width of the bridge will allow trucks to pass across.

### **Access Checklist**

#### **Roads:**

- \_\_\_\_\_ Two different points of access to development.
- \_\_\_\_\_ Roads dedicated to the public and maintained.
- \_\_\_\_\_ Minimum 60' right of way with 20' paved surface.
- \_\_\_\_\_ Curves not less than 50' radius.
- \_\_\_\_\_ No dead-ends, cul-de-sacs no longer than 600-800'.
- \_\_\_\_\_ Cul-de-sacs not less than 90' diameter.
- \_\_\_\_\_ Direct access from residences to street.
- \_\_\_\_\_ Grades do not exceed 8%.
- \_\_\_\_\_ Clearly marked house numbers visible from street.

#### **Bridges:**

- \_\_\_\_\_ Same width of paved surface as adjoining road.
- \_\_\_\_\_ Minimum load limit 20,000 lbs. (10 tons) per axle.
- \_\_\_\_\_ Built of non-combustible material.



### 3. Building of Your Home

There are a few things you must consider in a wildland area when deciding how you want your home to look. What type of roof will I have? What type of siding will I use? Will I have a deck? Does my home have a woodstove in it? Will I have large picture windows?

All of these questions can be answered in a way that will provide you with a higher level of fire protection. You must consider both the interior and exterior aspects of your construction.

Overhangs and vents can pose serious problems to your home when subjected to a fire. Reduce overhangs or box eaves to protect the house from ignition and heat or flame entrapment. Under-eave vents should be located near the roofline rather than near the wall. Orient exterior attic and under-floor vents away from possible fire corridors and cover them with wire screen, not to exceed 1-1/2 inch mesh. Screen unenclosed, under-floor areas.

**Roof:** It is strongly recommended that the roof be constructed of noncombustible or fire resistant materials. If you must use cedar shakes, use shakes which have been pressure treated with fire retardant materials.

**Siding:** Wood is very popular in our area but it burns. Metal siding, stucco, brick or stone, or fire retardant treated materials will lessen the chance of ignition.

**Deck:** Most homes in our area have a deck. Avoid building a deck that overhangs a slope. Fire resistant materials are a good idea.

**Wood stove:** Wood stove related fires are the largest single cause of fires in our area. It is extremely important that your stove is properly installed. In a wildland area part of the installation must include spark arresters to prevent sparks from igniting the trees around your home.

**Windows:** Install only thick, tempered safety glass in large picture windows. Shutters made of fire resistant materials can protect glass which is exposed to fire.

#### Building Your Home Checklist

The following checklist covers structures hazard reduction measures that homeowners can take.

##### Chimney:

- \_\_\_\_\_ Spark arrestor (max. 1/2" holes).
- \_\_\_\_\_ Clearance: 15' all sides.
- \_\_\_\_\_ 2' higher than surrounding roof within 10' of chimney.

##### Combustible exposure control:

- \_\_\_\_\_ Eaves extend less than 3' and enclosed.

- \_\_\_\_\_ Decks or balconies enclosed beneath.
- \_\_\_\_\_ Stilt construction fire resistant.
- \_\_\_\_\_ Firewood and other materials fully enclosed or more than 25' from structure.
- \_\_\_\_\_ Outbuilding 50' from structure.
- \_\_\_\_\_ Non-combustible patio or deck covers and mats.

**Louvers/Windows/Openings:**

- \_\_\_\_\_ Louvers covered with 1/4" mesh wire screen.
- \_\_\_\_\_ Louvers located in vertical wall rather than soffit of overhang.
- \_\_\_\_\_ Protection of windows and glazed areas.
- \_\_\_\_\_ All openings (e.g. garage) have doors or means to cover opening.

**Roofs:**

- \_\_\_\_\_ Fire resistant to level required by hazard.
- \_\_\_\_\_ Roof in good condition.
- \_\_\_\_\_ Gutters cleared of debris.
- \_\_\_\_\_ Overhanging trees minimum 15' from chimney thinned, maintained or cut down.

**Other building issues:**

- \_\_\_\_\_ House number clearly visible from street.
- \_\_\_\_\_ Storage tanks for hydrocarbon fuels or propane minimum 10' from building.
- \_\_\_\_\_ Outside hose bibbs/faucets with garden hose attached.

**Mobile homes:**

- \_\_\_\_\_ Under trailer area skirted in non-combustible material.
- \_\_\_\_\_ Roof of metal or non-combustible material.
- \_\_\_\_\_ Added decks, porches, or fences of fire-resistant materials.

**Building Spacing:**

- \_\_\_\_\_ Minimum spacing between buildings: 60'.
- \_\_\_\_\_ Minimum property line setback: 30'.
- \_\_\_\_\_ Minimum separation between primary and accessory buildings: 50'.

**Water:**

- \_\_\_\_\_ Hydrants available. Spacing \_\_\_\_\_. (According to local conditions).
- \_\_\_\_\_ Dependable power source for water.
- \_\_\_\_\_ Individual emergency water storage (minimum 2500 gallons per structure). If no public water, must be accessible with 1-1/2" line from the source for individual protection use.

**Electric Power:**

- \_\_\_\_\_ Underground transmission.
- \_\_\_\_\_ Above ground power lines, trimmed free of vegetation preferably 10' clear.
- \_\_\_\_\_ Use of large cross arms to prevent shunting of circuits by vegetation.

### **LANDSCAPING FOR SAFETY**

Landscaping for safety may be the most important feature of your wildland/urban plan. Vegetation management is a process by which you can minimize your exposure to wildfire.

Provide a fuel break around your home to a distance of thirty feet. Thin out stands of trees to create some clearance between trees to within 100 feet of your home. Be sure to remove any dead-fall or standing dead timber from these areas.

A number of strategies can be used within these "zones" to reduce your risk. Fuel removal, fuel reduction, fuel type conversion, or combinations can be used. It is recommended that in "zone 1", within 0'-30', any or all of these be utilized. In "zone 2" or , within 30'-60', reduction, conversion and combination can be used, as well as in "zone 3", which is within 60'-100'. The aspect or slope of your property can influence the effects of landscaping. The steeper the slope the faster the fire moves upward. If you live on or adjacent to a steep slope, it may be necessary to extend your zones by 100' or more. In other words, a house at the top of a steep slope may need to reduce fuel for several hundred feet below in order to reduce the speed of a fire moving up hill.

Within these zones the ground need not be bare, but can include a lawn of green grass, ornamental shrubbery, or individual trees pruned so limbs do not touch the ground. These plants should not allow fire to move from natural growth to structures. Prune all branches around your residence to a height of eight to ten feet. Remove all dead limbs and accumulations of needles and debris. This greatly reduces the probability of fires reaching the crowns of trees, and also can add to the visual quality of your landscape.

Do not allow any portion of any vegetation to extend to within 15 feet of the outlet of a stovepipe or chimney. Keep all trees adjacent to any building or structure free of dead or dying wood and moss.

Many fires are ignited by the electrical lines leading from the main power line to the house. Install these lines underground whenever possible. If this cannot be done, trim all limbs that come in contact with the wires. Stone walls can act as sheet shields and deflect flames. Use swimming pools, decks, and patios to create a safety zone.

Incorporate natural water supplies such as ponds or streams into your landscaping. These may become important sources of water for fire fighting purposes. Ensure that you have ample number of hose bibs on the exterior of your home.

The use of fire resistance plants can also play an important role in designing your home. Not all of the following plants may grow in our area. We recommend you contact your landscaper or the Teton County Extension Service for additional information.

### **Ground Cover:**

Replace bare spaces and weedy patches near your home with ground covers, including turf, perennial flower beds, vegetable gardens, fire resistant clump grasses, and mulches.

If irrigated, turf can provide an effective firebreak.

Herbaceous perennials and annuals also require irrigation. These species include low growing or spreading plants like seedums, sempervivum, potentilla, snow in summer, vinca, virginia creeper, wheat grass, rice grass, tall fescue, marigold, zienna, strawberries, clover, and others.

Plant perennial bunch grass, such as crested wheat grass, at least ten to twenty feet and as much as three hundred feet wide around the perimeter of your property to create a fire break. Crested wheat grass is largely fire resistant and does not usually require irrigation. It will help suppress the growth of highly flammable annuals such as cheatgrass. Grass can be grazed or occasionally mowed to further reduce fuel accumulation.

Mulch helps control erosion, conserve moisture, and reduce weed growth. It can be organic, such as straw, compost, leaf mold, bark chips, shredded leaves, or lawn clippings; or it can be inorganic, including plastic materials, gravel, rock, and decomposed granite. Avoid using pine bark and thick layers of pine needles; they tend to smoulder and are difficult to extinguish.

### **Perennials:**

Choose hardy perennial flowers that are adapted to the climate. These green, leafy, succulent plants are harder to burn. Irrigation and regular weeding improves the fire resistance of yarrow, flax, columbine, pennstemon, low sage, shasta daisy, pinks, sulferflower, giallardia, daylilly, candytuft, iris, lupine, primrose, poppy, dusty miller, lambs ears, and others.

### **Shrubs:**

Some deciduous shrubs can be used in foundation plantings if maintained, watered, and well spaced. Evergreens such as dwarf conifers and junipers tend to ignite easily; avoid them unless well-spaced. Place them at least twenty feet from any structure and prune regularly.

If maintained, hedge rows can deflect wind and filter wind-blown embers. Plant continuous deciduous hedges at least thirty feet from your home only if you will irrigate and remove dead branches regularly. Fire resistant shrubs include bush cherries, hedging roses, bush honeysuckles, currant, cotoneaster, sumac, tamarisk lilac, shrub apples, and buffaloberry.

### **Trees:**

Deciduous trees can be clumped, scattered, or planted in green belts or windbreak patterns. Evergreen trees tend to ignite easily and should be avoided unless well spaced.

Selection of trees is not as important as placement. Inside the yard, space trees at least thirty feet apart and prune to a height of eight to ten feet. Crowns should not touch and branches should not overhang your house. Reduce combustible material under and between trees. Large areas or difficult sites may require professional assistance.

A well designed deciduous windbreak can slow or even stop a fire before it reaches structures. Plant windbreak trees no more than ten feet apart and at least five times the mature tree height from the area to be protected, or one hundred feet. Plant on flat areas or at the base of slopes. Fast growing trees require frequent irrigation to keep them healthy. Maples, poplars, willows, aspen, and birch all require moist root zones to remain fire resistant.

## **LANDSCAPING CHECKLIST**

- \_\_\_\_\_ Use of zone management for landscaping.
- \_\_\_\_\_ Zone 1 is 0'-30' with fuel reduction used.
- \_\_\_\_\_ Zone 2 is 30'-60' with heavy brush or trees thinned out.
- \_\_\_\_\_ Zone 3 is 60'-90' with heavy brush or trees thinned out.
- \_\_\_\_\_ Branches trimmed to a height of 8'-10'.
- \_\_\_\_\_ Branches trimmed 15' from chimney.
- \_\_\_\_\_ Branches trimmed away from electrical lines.
- \_\_\_\_\_ Water sources incorporated into the landscape.
- \_\_\_\_\_ Fire resistant plants used or intermingled into landscapes.

## **HOME MAINTENANCE**

Once your home is built there are some simple things which you should do to maintain that level of fire safety which you have already built in.

Keep tree branches trimmed back away from your roof to prevent transfer of fire. Keep the branches trimmed at least 15 feet from the terminus of your chimney.

Keep the plants surrounding your home well watered to prevent excessive drying. The green zone within thirty feet of the home is most critical for fire and watershed safety. Maintain nonflammable landscaping such as lawns, border plantings, flower gardens and vegetable beds. Structures such as pools, concrete decks, and recreation areas help to reduce fire hazard close to the home. In the thirty to one-hundred foot green zone around the home, remove dead woody plants. Occasionally prune trees and shrubs and eradicate weedy species. Beyond one-hundred feet, reduce the amount of vegetation and thin out the most flammable species. Remove older vegetation while favoring younger plants to reduce the possibility of major wildfires.

Make sure that electrical lines are kept clear of vegetation.

Keep pine needles and deciduous leaves from building up on the roof and rain gutters.

Be careful with the use of outdoor cooking equipment. Use of outdoor cooking equipment has started a number of serious fires. Equip permanently installed fireplaces with a screen over the outlet and a method of controlling in-draft. Clear at least five feet of flammable material around fireplaces and trim overhanging limbs to within 15 feet. Portable barbecues present a special problem; use extra caution in disposing of briquets remaining after use. Place them in a closed metal container located in a safe place or extinguish them in a bucket of water.

If you have a gasoline, diesel or propane tank, make sure it is at least 10 feet from structures. Make sure all vegetation is cleared away from the tanks. Be especially careful with ignition sources around tanks.

### **HOME MAINTENANCE CHECKLIST**

- \_\_\_\_\_ Branches trimmed 15' away from chimney.
- \_\_\_\_\_ Gutters are cleaned of debris.
- \_\_\_\_\_ Tree limbs trimmed to a height of 8'-10'.
- \_\_\_\_\_ Vegetation trimmed away from electrical lines.
- \_\_\_\_\_ Vegetation is trimmed 30' from the house.
- \_\_\_\_\_ Vegetation is well watered.
- \_\_\_\_\_ Permanent barbecues have appropriate screens.
- \_\_\_\_\_ Portable barbecues are in a stable location.
- \_\_\_\_\_ You have a bucket for ashes from the barbecue with a tight fitting lid.
- \_\_\_\_\_ Vegetation is cleared away from fuel tanks.

### **IV. DEVELOPING YOUR FIRE PLAN**

It is important that you have a plan to respond to a wildfire. Remember, like most fires, wildfires start small. With a plan and preparation you may avert the large ones.

Report the fire right away. 911 is used in most areas.

You must know how to get out of your house. Two ways out is critical. You must know your evacuation routes so when it is time to leave you have a clear understanding of where to go. Know places of refuge in case the fire approaches to quickly.

If you must leave, leave the lights on in your home. If the electrical power does not fail, such lights will call attention to out-of-the-way homes during hours of darkness.

Leave doors and windows closed but unlocked. It may be necessary for firemen to gain quick entry into your home to fight fire.

If it becomes necessary to drive through fire, roll up the car windows, turn on the headlights, and drive slowly. A motor vehicle can be driven through considerable fire provided the driver remains calm. Look out for other vehicles and pedestrians when driving through smoke-filled streets.

Part of your plan should include fighting the fire if necessary. You should be prepared with proper equipment. The following list gives you some ideas.

### **EQUIPMENT CHECKLIST**

- \_\_\_\_\_ Hoses pre-connected to all faucets; hoses should be 5/8 inch or larger inside diameter, and 100 feet long.
- \_\_\_\_\_ One or more long-handle, round-point shovel.
- \_\_\_\_\_ One ladder long enough to reach the roof of the building easily.
- \_\_\_\_\_ One rake (leaf, garden, asphalt, or special firefighting).
- \_\_\_\_\_ One or more 5-pound multipurpose fire extinguisher.
- \_\_\_\_\_ Axe.
- \_\_\_\_\_ Hoe (heavy duty or special firefighting).
- \_\_\_\_\_ One or more fire buckets.
- \_\_\_\_\_ Backpack water pump.
- \_\_\_\_\_ Portable gasoline-powered water pump.
- \_\_\_\_\_ Protective clothing for anyone who may not evacuate before the arrival of a fire. This includes boots, long trousers, long-sleeved shirt or jacket, helmet or other head covering, gloves, and goggles. Cotton clothing is a "must;" synthetics can melt onto your skin.

Members of your family should have tasks to avoid duplication of effort in an emergency. Equipment should be assembled and easily located to avoid searching for what you need.

If you must stay, evacuate your pets and all family members who are not essential to protecting the home, if possible.

Dress properly to survive the fire. Wear cotton fabrics, not synthetics. Wear long pants and boots and carry with you for protection a long-sleeved shirt or jacket, gloves, a handkerchief to shield your face, and goggles.

Remove combustible items from around the house. This includes lawn and poolside furniture, umbrellas, and tarp coverings. If they catch fire, the added heat could ignite your house.

Close outside attic, eave, and basement vents. This will eliminate the possibility of sparks blowing into hidden areas within the house. Close window shutters.

Shut off any natural gas, LPG, or fuel oil supplies at a point as far from the structure as the plumbing will allow.

Test the water system including any pumps on the property, each valve, and each hose.

Connect all garden hoses and leave them coiled loosely in a convenient location.

Place large plastic trash cans or buckets around the outside of the house and fill them with water. Soak burlap sacks, small rugs, large rags. They can be helpful in beating out burning embers or small fires. Inside the house, fill bathtubs, sinks, and other containers with water. Toilet tanks and water heaters are important water reservoirs.

Shut off all water except fire fighting valves. The house should be plumbed so that closing one valve will accomplish this. If it is not, close each interior faucet and valve.

Locate garden hoses so they will reach any place on the house. Use a spray-gun type nozzle, adjusted to spray.

If you have portable gasoline-powered pumps to take water from a swimming pool or tank, make sure they are operating and in place.

Place a ladder against the house opposite the side of the approaching fire. If you have a combustible roof, wet it down only when fire is imminent. Premature use of water will only waste a resource that could save your home once the fire arrives.

Back your car into the garage and roll up the car windows. Disconnect the automatic garage door opener so that, if the power fails, you can still open the door by hand. Close all garage doors.

Place valuable papers and mementos inside the car in the garage for quick departure. Any pets still with you should also be put in the car.

Close house to prevent sparks from blowing inside. Close all doors inside the house to prevent draft. Open the damper on your fireplace to help stabilize outside-inside pressure, but close the



fireplace screen so sparks will not ignite the room. Turn on a light in each room to make the house more visible in heavy smoke.

Turn off pilot lights to minimize the possibility of igniting a ruptured fuel line.

If you have time, take down flammable drapes and curtains. Close all metal blinds or noncombustible window coverings to reduce the amount of heat radiating into your home. This gives added safety in case the windows give way because of heat or wind. If coverings are not available, cover windows with aluminum foil or other heat reflective material.

## **V. SUMMARY:**

The protection of your home from wildfire is something that you can have a great deal of influence on. This information gives only the very basic steps for protection from the devastation of an uncontrolled wildfire. For more information concerning prevention of wildfire and steps to take when wildfire occurs please contact the Jackson Hole Fire/EMS at the following address:

Jackson Hole Fire/EMS  
P.O. Box 901  
40 East Pearl Avenue  
Jackson, WY 83001

Phone: (307) 733-4732  
Fax: (307) 739-9856  
e-mail: [fireadmin@tetonwyo.org](mailto:fireadmin@tetonwyo.org)  
on the web: [www.jhfire-ems.org](http://www.jhfire-ems.org)

## APPENDIX D

### FIRE RESISTANT PLANT LIST FOR THE TETON COUNTY AREA

#### GROUND COVER AND FLOWERING PLANTS:

Replace bare spaces and weedy patches near your home with ground covers, including turf, perennial flower beds, vegetable gardens, fire resistant clump grasses, and mulches.

Herbaceous perennials and annuals also require irrigation. These species include low growing or spreading plants like seedums, sempervivum, potentilla, snow in summer, vinca, virginia creeper, wheat grass, rice grass, tall fescue, marigold, zienna, strawberries, clover, and others.

Plant perennial bunch grass, such as crested wheat grass, at least ten to twenty feet and as much as three hundred feet wide around the perimeter of your property to create a fire break. Crested wheat grass is largely fire resistant and does not usually require irrigation. It will help suppress the growth of highly flammable annuals such as cheatgrass. Grass can be grazed or occasionally mowed to further reduce fuel accumulation.

Mulch helps control erosion, conserve moisture, and reduce weed growth. It can be organic, such as straw, compost, leaf mold, bark chips, shredded leaves, or lawn clippings; or it can be inorganic, including plastic materials, gravel, rock, and decomposed granite. Avoid using pine bark and thick layers of pine needles; they tend to smolder and are difficult to extinguish.

Choose hardy perennial flowers that are adapted to the climate. These green, leafy, succulent plants are harder to burn. Irrigation and regular weeding improves the fire resistance of plants.

#### **Specific Listing:**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Known Fire Resistance</u>
Achillea lanulosa	Yarrow, Native	Moderate to Resistant
Aconitum columbianum	Columbian Monkshood	
Allium cernum	Nodding Onion	
Allium geoyeri	Geyer Onion	
Anaphalis margaritacea	Pearly Everlasting	
Antennaria parvifolia	Small-leaf Pussytoes	
Aquilegia spp.	Columbine	
Arabis sp.	Rockcress	
Atremesia ludovinciana	White Sage	
Calochortus sp.	Mariposa Lily	
Campanula rotundifolia	Harebell, Common	
Claytonia lanceolata	Spring Beauty	
Delphinium spp.	Delphinium	
Epilobium angustifolium	Fireweed	
Erigeron flagellarius	Trailing Fleabane	
Eriogonum umbellatum	Western Wallflower	Susceptible to Moderate
Fragaria vesca	Woodland Strawberry	

<u>Scientific Name</u>	<u>Common Name</u>	<u>Known Fire Resistance</u>
Gaillardia aristata	Blanket Flower	
Galium boreale	Northern Bedstraw	
Geranium richardsonii	Richardson Geranium	Moderate
Geranium viscosissimum	Sticky Geranium	Moderate
Geum triflorum	Prairie Smoke	
Helianthella quinquenervis	Aspen Sunflower	
Heuchera spp.	Coral Bells	
Ipomopsis aggregata	Scarlet Gilia	
Iris missouriensis	Iris, Native	
Linum lewisii	Wild Blue Flax	
Lupinus argenteus	Silvery Lupine	Moderate to Resistant
Lupinus parviflorus	Lodgepole Lupine	
Mertensia lanceolata	Prairie Bluebells	
Mimulus guttatus	Yellow Monkey Flower	
Oenothera caespitosa	Stemless Evening Primrose	
Oenothera elata	Hooker's Evening Primrose	
Penstemon sp.	Penstemon	Moderate
Polemonium	Jacob's Ladder	
Potentilla	Leafy Potentilla	
Rudbeckia occidentalis	Black-eyed Susan	
Sedum laceolatum	Lance Leaf Stonecrop	
Senecio integrifolius	Broom Groundsel	
Solidago missourienses	Smooth Goldenrod	
Thalictrum fenleri	Fendler's meadow-rue	

### **SMALL SHRUBS:**

Some deciduous shrubs can be used in foundation plantings if maintained, watered, and well spaced. Evergreens such as dwarf conifers and junipers tend to ignite easily; avoid them unless well-spaced. Place them at least twenty feet from any structure and prune regularly.

If maintained, hedge rows can deflect wind and filter wind-blown embers. Plant continuous deciduous hedges at least thirty feet from your home only if you will irrigate and remove dead branches regularly.

### **Specific Listing:**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Known Fire Resistance</u>
Arctostaphylos uva-ursi	Kinnikinnick, Bearberry	
Betula glandulosa	Dog Birch	
Ceanothus	Mountain Lilac	
Chrysothamnus spp.	Rabbitbrush	Moderate to Resistant
Cornus stolonifera	Redtwig Dogwood	Moderate
Lonicera invilucrata	Twinberry Honeysuckle	Susceptible to Moderate
<u>Scientific Name</u>	<u>Common Name</u>	<u>Known Fire Resistance</u>
Mahonia repens	Grape Holly	

Pentaphylloides floribunda	Shrubby Cinquefoil	
Physocarpus malvaceus	Mountain Ninebark	
Prunus virginiana	Western Sand Cherry	
Purshia tridentate	Antelope bitterbrush	Susceptible to Moderate
Ribes aureum	Golden Current	
Ribes inerme	Whitestem Gooseberry	
Rhus sp.	Sumac	
Rosa woodsii	Wild/Woods/Prairie Rose	Moderate
Shepherdia Canadensis	Russet Buffaloberry	Moderate
Symphoricarpos spp.	Snowberry, Coralberry	Moderate to Resistant

### **TREES AND LARGE SHRUBS:**

Deciduous trees can be clumped, scattered, or planted in green belts or windbreak patterns.

Evergreen trees tend to ignite easily and should be avoided unless well spaced.

Selection of trees is not as important as placement. Inside the yard, space trees at least thirty feet apart and prune to a height of eight to ten feet. Crowns should not touch and branches should not overhang your house. Reduce combustible material under and between trees. Large areas or difficult sites may require professional assistance.

A well designed deciduous windbreak can slow or even stop a fire before it reaches structures. Plant windbreak trees no more than ten feet apart and at least five times the mature tree height from the area to be protected, or one hundred feet. Plant on flat areas or at the base of slopes. Fast growing trees require frequent irrigation to keep them healthy. Maples, poplars, willows, aspen, and birch all require moist root zones to remain fire resistant.

### **Specific Listing:**

<b><u>Scientific Name</u></b>	<b><u>Common Name</u></b>	<b><u>Known Fire Resistance</u></b>
Acer glabrum	Rocky Mountain Maple	Susceptible to Moderate
Acer grandidentatum	Canyon Maple	
Alnus incana	Mountain Alder	
Amelanchier alnifolia	Western Serviceberry	Moderate
Amelanchier utahensis	Utah Serviceberry	
Betula glandulosa	Dog Birch	
Betula occidentalis	Western Water Birch	
Cercocarpus ledifolius	Mountain Mahogany	
Populus angustifolia	Narrowleaf Cottonwood	
Populus tremuloides	Aspen	
Prunus virginiana	Western Chokecherry	
Rubus parviflora	Thimbleberry	
Salix artica	Arctic Willow	
Sorbus scopulina	Western Mountain Ash	Resistant

For more information, contact:

Jackson Hole Fire/EMS, Office of the Fire Marshal  
P.O. Box 901, Jackson, WY 83001  
(307) 733-4732, [rpalmer@tetonwyo.org](mailto:rpalmer@tetonwyo.org)

## **APPENDIX E**

### **GENERALIZED FUEL TREATMENT OBJECTIVES AND GUIDELINES**

These options provide example management techniques that can be generally applied to vegetative cover types found in the Teton County area. Nonetheless, a professional should be consulted in determining management techniques in specific forest stands. Management, vegetation, and treatment objectives will vary based upon the actual conditions which exist on an individual site and alternative management objectives that meet the goal of wildfire risk reduction may be developed.

#### **Management Objectives:**

The greatest reduction in potential wildfire intensity will be achieved by prioritizing treatment as follows in conifer stands:

1. Remove excessive down material.
2. Remove ladder fuels.
3. Reduce canopy closure/density.

Raise canopy base heights to at least 10-15 feet above the ground in mixed species stands (lodgepole, Douglas fir, aspen). Basal area (BA\*) less than 80 square feet; open canopy, crowns at least 20 feet apart; multiple ages especially with aspen recruitment.

Rejuvenate aspen stands as they typically exhibit much lower intensity fire behavior.

Break up sagebrush continuity to reduce potential wildfire intensity. Achieve a canopy coverage of no more than 30%.

#### **Vegetation Objectives:**

Remove ladder fuels within all cover types and maintain this condition over time. Open canopy to prevent proliferation of a crown fire and maintain this over the life of the stand.

Remove over-story trees in stand that would require the removal of mature trees for generative success of the stand as well as increased safety within the forest.

Remove conifers from aspen stands to set back succession. Provide adequate (1000-2000 stems/acre) regeneration of aspen 10 feet tall in 15 years. Keep 70% of the aspen from being browsed. Provide structural diversity in aspen community type across the landscape.

Break up sagebrush continuity to achieve a canopy coverage of no more than 30%.

#### **Treatment objectives:**

Thin from below all conifers to a BA of 80 square feet with an average crown spacing of 20 feet. Remove all ladder fuels (trees less than 8" dbh) from the dripline of leave trees. Raise crown base height to 10-15 feet throughout the treatment units. Reduce surface fuels of large down

woody material to 5-7 tons/acre and maintain this condition over time. Remove conifers from aspen clumps and increase aspen regeneration in these areas.

### **“Leave” Trees**

Aspen Areas – Leave all aspen trees. Aspen clumps (clump = 3 or more aspen). Leave **NO** live conifers within the clumps and within 80-100 feet of the clump if the clump is composed of mature trees. If clump is composed of seedlings or saplings, remove all live conifers within clump and within 1.5 aspen tree heights of the clump.

### **Lodgepole Pine**

Leave a basal area of 80 square feet so they are less susceptible to bark beetle attack. May make dense stands more prone to windthrow. In lodgepole you may only want to remove 30% of basal area to prevent windthrow. Leave trees should be spaced approximately 15' by 15'. Do not make spacing uniform throughout the stand.

Remove all trees less than 7 inches dbh that are under the dripline of the leave trees.

Prune limbs on remaining trees 6'-15' from the ground.

### **Douglas Fir**

Cut trees less than 8" dbh from under crowns of larger retention trees. All trees will remain that are not under the dripline of trees 8" dbh and larger.

Prune limbs of all remaining trees 6-15' from the ground.

Maintain 50-80 basal area of live Douglas fir trees > 12 inch dbh.

Maintain 10-30% of the < 12" dbh live trees per stand.

Leave no more than 13 tons/acre of dead fuel loading, including duff.

### **Prescribed Burn Aspen Objectives**

**Aspen** – Immediately post burn attain 70-90% of understory vegetation scorched.

Immediately following burn 50-80% removal of duff and litter.

Attain > 50-80% mortality of aspen trees (>5.9"DBH) within one year of burn.

Attain > 85% conifer mortality within one year of burn.

Attain < 20% bare ground cover, within 5 years post-treatment.

Attain 2000-5000 aspen stems/acre at 6ft height over 70% of the treatment area with a strong terminal leader.

Attain at least 1000-2000 aspen stems/acre at 10-15 ft. height with a strong terminal leader, within < 15 years post treatment.

Maintain ungulate herbivory levels at < 30% browse levels of terminal, main leader.

(\***BA**: Basal Area. A measure of relative density of trees in a stand. A measure of the square footage of tree stem material per acre.)

## APPENDIX F

### Links

**Teton County, Wyoming:** [www.tetonwyo.org](http://www.tetonwyo.org)

The Teton County web site provides a comprehensive source of information, including county statistics, calendar items, business resources and wildland fire information.

**Jackson Hole Fire/EMS:** [www.jhfire-ems.org](http://www.jhfire-ems.org)

This site contains announcements and schedules for the Fire/EMS program, including information about the annual spring Fire/EMS Conference.

**Be Prepared Teton County:** [www.bepreparedtc.com](http://www.bepreparedtc.com)

Be Prepared Teton County provides useful information so that individuals and families can be better prepared for a natural disasters such as floods, earthquakes or wildfires. The site also contains an interactive Hazards Map.

**Bridger-Teton National Forest:** [www.fs.fed.us/btnf](http://www.fs.fed.us/btnf)

**Grand Teton National Park:** [www.nps.gov/grte](http://www.nps.gov/grte)

**Caribou-Targhee National Forest:** [www.fs.fed.us/r4/caribou-targhee](http://www.fs.fed.us/r4/caribou-targhee)

**Town of Jackson Municipal Government:** [www.ci.jackson.wy.us](http://www.ci.jackson.wy.us)

Information found at this web site includes Town Council meeting agendas and minutes, town ordinances, municipal codes, etc.

**FIREWISE:** [www.firewise.org](http://www.firewise.org)

FIREWISE is a multi-agency program that encourages the development of defensible space. This site is specifically for homeowners who live in fire-prone areas, providing information on how individuals can lessen the risk of damage caused by wildland fire to their home and property.

**FIREWISE Wyoming:** <http://www.firewisewyoming.com>

Like the national FIREWISE site above, this site provides information and links that describe how to live in a safe, reduced fire risk area. These tips apply to urban homes, mountain homes or cabins, ranch or farm homes, or any other property or structures.

**Firewise Landscaping and Construction Checklists:**

<http://www.tetonfires.com/pdf/fwlists.pdf> These checklists include information on developing and maintaining a firewise landscape and constructing, renovating, or adding to a home.

**National Interagency Fire Center (NIFC):** [www.nifc.gov](http://www.nifc.gov)

The NIFC site is an excellent source of information for current and archived wildland fire information. Also contained within the site are educational resources such as a communicator's guide to wildland fire, the Burning Issues interactive multimedia program, and various publications for homeowners and firefighters about the wildland/urban interface.

